

National Climatic Data Center

DATA DOCUMENTATION

FOR

DATA SET 3274 (DSI-3274)

**Continuous Meteorological Data From the Four NOAA/CMDL
Observatories - Hourly Averages**

March 19, 2003

National Climatic Data Center
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1. **Abstract:** The Continuous Meteorological Observations Data File contains data from the Climate Monitoring Diagnostics Laboratory (CMDL), a part of the National Oceanic and Atmospheric Administration's Environmental Research Laboratories (NOAA/ERL). There are four global baseline observatories maintained and operated by CMDL where local pollution and anthropogenic influences are frequently non-existent. The sites are located at Barrow, Alaska (BRW-27514), Mauna Loa Observatory, Hawaii (MLO-21511), Cape Matatula, American Samoa (SMO-61707), and South Pole, Antarctica (SPO-90002) where the information in parenthesis represent the 3 letter station abbreviation and the 5 digit WBAN identification number. The data taken from these four stations go back to the mid-1970s.

Demand for data and comprehensive information concerning past and future fluctuations in atmospheric composition and climate continues to increase, and NOAA has a leading role in meeting this demand. Therefore CMDL takes long-term monitoring data on atmospheric trace constituents. Meteorological parameters are measured to support research of these data.

2. **Element Names and Definitions:** Each logical record contains one station's hourly data values for a specific element for a period of one day. The record consists of a control word, an identification portion, and a data portion. The control word is used by the computer operating system for record length determination. The identification portion identifies the record type, observing station, element type, element units, year/month, source codes, day and number of values. The data portion contains the observations for the hourly data values and flags. The data portion is repeated for as many hourly values as occur in a day.

RECORD-TYPE - The type of data stored in this record. Value is "HLY". Each record contains one day of hourly values.

STATION-ID - Contains the WBAN Station Number. (Assigned by NCDC.) Range of values: 21511 (MLO), 27514 (BRW), 61707 (SMO), 90002 (SPO). Eight digit station numbers are always right justified, zero filled.

ELEMENT-TYPE - The type of data element stored in this record. This data set contains seven elements: AIRT - Air Temperature, DEWT - Dew Point Temperature, PREC - Precipitation Amount, STPR - Station Pressure, WNDI - Vector Wind Direction, WNSP - Vector Wind Speed, and WNST - Wind Steadiness Factor. (Note: The Steadiness Factor is 100 times the ratio of the vector wind speed to the average wind speed for the hour.)

ELEMENT-UNITS - The units and decimal position of the data value for this record. The element units used for this data record varies with the element: DC - Degrees Celsius to tenths for AIRT and DEWT, MM - millimeters for PREC, MB - millibars to tenths for STPR, DG - whole degrees for WNDI, MS - meters per second to tenths for WNSP, and SF - steadiness factor. (Note: The Steadiness Factor is 100 times the ratio of the vector wind speed to the average wind speed for the hour.)

YEAR - This is the year of the record. Range of Value is 1973 - current year processed.

MONTH - This is the month of the record. Range of value is 01-12.

SOURCE-CODE-1 - Contains a code that indicates the instrument type used

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in taking the data. (blank) - **Source code not used at this time.**

SOURCE-CODE-2 - Contains a code that indicates the back-up instrument type used in taking the data. (blank) - **Source code not used at this time.**

DAY - Contains the day of the record. Range of value is 01-31.

NUM-VALUES - This notates the actual number of values reported. Range of values is 001-024.

TIME-OF-VALUE - Range 0100-2400 contains the hour of the hourly element value. Times are expressed in Universal Coordinated Time (UTC).

SIGN-OF-METEOROLOGICAL-VALUE - This is the 'SIGN' of the meteorological data value (Tape Field 013). A blank represents a positive value or a minus sign represents a negative value. The sign is always blank. Only the temperature elements AIRT and DEWT can have negative values. For all other elements, this field is blank.

DATA-VALUE - Actual data value. This field is a five digit integer. Units and decimal position are indicated in the ELEMENT-UNITS field described in Tape Field 004. Missing Values are not included in the variable length record structure.

FLAG-1 - The data Flag (part 1). **Flags are not used at this time.**

FLAG-2 - The data Flag (part 2). **Flags are not used at this time.**

3. **Start Date:** Data goes back to the Mid-1970's, varies by station.

4. **Stop Date:** 19940701

5. **Coverage:** There are four global baseline observatories maintained and operated by the Climate Monitoring Diagnostics laboratory (CMDL). The observatories are located at Barrow, Alaska, Mauna Loa Observatory, Hawaii, Cape Matatula, American Samoa, and South Pole, Antarctica.

6. **How to Order Data:**

Ask NCDC's Climate Services about the cost of obtaining this data set.

Phone: 828-271-4800

FAX: 828-271-4876

E-mail: NCDC.Orders@noaa.gov

7. **Archiving Data Center:**

National Climatic Data Center

Federal Building

151 Patton Avenue

Asheville, NC 28801-5001

Phone: (828) 271-4800.

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8. Technical Contact:

Climate Monitoring and Diagnostics Lab
NOAA/ERL
R/E/CG1
325 Broadway
Boulder, CO 80303

9. Known Uncorrected Problems: No information provided with original documentation.

10. Quality Statement: Calibration and quality assurance are performed by CMDL. While CMDL is responsible for quality control, NCDC checks all data files for gross errors and duplicate data prior to submitting files to the archives. While every effort has been made to bring this data to the highest level of quality, the process is not complete as of this date. As quality assurance procedures are completed, the data will be so indicated in the table that follows. Otherwise, the data included in the indicated time periods must be considered as preliminary data.

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|----------------|------------------------|
| Point Barrow - | Jan 1, 1977 to present |
| Mauna Loa - | Jan 1, 1977 to present |
| Samoa - | Jan 1, 1977 to present |
| South Pole - | Jan 1, 1977 to present |

Correspondence concerning the quality of these data should be addressed to:

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NOAA/CMDL
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Boulder, CO 80303
E-mail: gherbert@cmdl.noaa.gov

11. Essential Companion Datasets: No information provided with original documentation.

12. References: Information concerning the sensors used and the exposure can be found in the following references:

Herbert, G.A., J. Harris, M. Bieniulis, and J. McCutcheon, "Acquisition and Data Management," in CMDL Summary Report 1989, No. 18, 1990, Pg. 50.

Herbert, G.A., E.R. Green, G.L. Koenig, and K.W. Thaut, "Monitoring instrumentation for the continuous measurement and quality assurance of meteorological observations," NOAA Tech Memo ERL ARL-148, 44 pp, 1986.

Herbert, G.A., E.R. Green, J.M. Harris, G.L. Koenig, S.J. Roughton, and K.W. Thaut, "Control and Monitoring Instrumentation for the Continuous Measurement of Atmospheric CO₂ and Meteorological Variables," J. of Atmos. and Oceanic Tech., 3, 414-421, 1986.

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